

## **REMARKS/ARGUMENTS:**

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

In response to the Office action of December 27, 2006, the specification has been amended so that certain terms and phrases as set forth in the original specification and original claims, and which are believed to be well understood by those having ordinary skill in the art as originally presented, have been clarified without the addition of new matter. A discussion of this clarifying language is set forth below in connection with applicant's response to certain objections to the drawings and certain rejections of claims contained in the last Office action.

In addition to the amendments to the specification, claim 50 has been cancelled so that claims 26 through 49 remain in the case. Also with respect to the claims, claim 32 has been amended to correct two typographical errors.

### **Objection to the Drawings**

With respect to the objections that have been made to the drawings under 35 CFR 1.83 (a), it is first noted that, as indicated above, claim 50 has been cancelled so that the objection raised in connection with the use of the phrase "coolant channel" in claim 50 and the alleged failure of the drawings to show such a feature is now moot.

Concerning the descriptive expression "geometrically created form transitions", it is respectfully submitted that this expression based on a consideration of the entire context of the specification taken together with the drawings would be understood by one of ordinary skill in the art to refer to any line on the ceramic part, other than a cutting edge, that is formed by the intersection of two surfaces at an angle of other than 180 degrees as stated in the amendments to page 8 of the specification and to the carry-over paragraph on pages 2 and 3 of the specification. Obviously, the drawings illustrate a multiplicity of such lines on the several embodiments of the invention and no amendments need to be made to the drawings in this regard in order for the invention to be understood. However, if the examiner considers it necessary, a reference numeral can be attached to one or more of the lines in the drawings with an appropriate reference thereto included in the specification.

With respect to the expression "core reinforcement", this expression as well, based on a consideration of the entire context of the specification taken together with the drawings would be understood by one of ordinary skill in the art to refer to that part of the ceramic portion of the working member that underlies and is not penetrated by the grooves or cuts in the ceramic portion of the working member as stated in the amendment to page 8 of the specification and to the first full paragraph of page 3 of the specification. The core reinforcement or core diameter portion of the ceramic portion of the working member can be seen in FIG. 6 for example as comprising that central portion of the ceramic portion of the working member that underlies the cutting edges of the tool. Again it is respectfully submitted that no amendment to the drawings is required and that the description of this feature in the specification, particularly as set forth in the amendments to the

specification, is sufficient for one of ordinary skill in the art to understand the invention.

As far as the expression "conical" and the reference to angular tapers for the core reinforcement are concerned, FIGs. 4 and 5 of the drawings show a ceramic portion 2 of a working member where the core reinforcement is conical and in that instance, of course, the conical configuration would be tapered.

#### Rejections Based on 35 U.S.C. 112, First Paragraph

Claims 28-35 and 50 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enabling requirement because, allegedly, the claims contain subject matter not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention.

With respect to claims 28 and 29, and the use of the limitation "geometrically created form transitions", it is respectfully submitted, as discussed above, that the amendment to the specification presented herein referring to that expression corrects any alleged indefiniteness in the use of the expression.

As far as claims 30-33 are concerned and the alleged indefiniteness of the limitation "core reinforcement", the discussion above dealing with the expression establishes that the specification, particularly as amended herein, corrects that alleged indefiniteness.

With respect to claims 34 and 35, while the term "microhardening" may not appear in the Patent Office data base, the concept of microhardness is well known to those having ordinary skill in the art as explained in the amendments to the second full paragraph of page 2 of the specification and page 8 of the specification.

The rejection of claim 50 has been mooted by the cancellation herein of claim 50.

#### Rejections Based on 35 U.S.C. 112, Second Paragraph

Although claims 1-22 are said to be rejected under the second paragraph of 35 U.S.C. 112 as allegedly failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention, it is only claims 28 through 35 that are specifically addressed as being deficient in that regard. As to claims 28 through 35, they are rejected based on their use of the expressions "geometrically created form transitions", "core reinforcement" and "microhardening". However, the fact that the use of these expressions is appropriate is discussed above and the points made in that discussion are equally applicable to claims 28 through 35.

#### Rejections Based on Prior Art

##### Rejections Based on 35 U.S.C. 102 (b)

Claims 26, 30, 31, 34-36 and 42-50 stand rejected under 35 U.S.C. 102 (b) as being anticipated by Japanese Patent 05309102. All of these claims require that the ceramic part of the working member have a surface roughness of 0.5  $\mu\text{m}$  to 6  $\mu\text{m}$ . The Abstract of the Japanese Patent makes no mention of the surface roughness of the tool described in the Japanese Patent. The statement in the Japanese Patent referred to by the examiner to the effect that a diamond single crystal particle layer is deposited to a thickness of 5 to 50  $\mu\text{m}$  has no relevance to what the surface roughness of the layer might be. Consequently, for that reason at least, claims 26, 30, 31, 34-36 and 42-50 are not anticipated by the Japanese Patent. Also, with respect to claim 34, the fact that the Japanese Patent uses a micron sized abrasive diamond layer does not mean that the tool is

microhardened as the examiner suggests. The requirement in claim 34 that the surface of the tool be microhardened requires that the hardness of the surface be increased and there is no indication in the Abstract of the Japanese Patent that the diamond layer is hardened after it is put down.

With respect to the rejection of claim 42 under 35 U.S.C. 102 (b), there is nothing in the Abstract of the Japanese Patent that indicates that the shaft 2 at the top of the tool has ceramic material fastened to it as alleged by the examiner. And as far as claim 45 is concerned, the examiner seeks to dismiss the requirement that the surface of the ceramic material be ground by alleging that whether the grooves 3 of the tool of the Japanese Patent are formed by grinding or molding imposes no ascertainable structural distinction. This position of the examiner begs the question, however, because the entire working surface of the tool of the Japanese Patent is layered with a diamond coating and the Abstract of the Japanese Patent says nothing concerning whether the diamond layer is ground.

#### Rejection Based on 35 U.S.C. 103 (a)

Claims 27-29, 32 and 33 have been rejected under 35 U.S.C. 103 (a) as unpatentable over the Japanese Patent. With respect to claim 27, the examiner seeks to dismiss the limitation relating to surface roughness as a feature that merely amounts to the selection of a fine abrasive grit size for the purpose of producing a fine finish as would be obvious to one skilled in the art. This amounts to an unfounded assumption by the examiner. There is nothing in the prior art cited by the examiner that teaches that the surface roughness of the instrument can be correlated to the fineness of the finish the instrument produces for the surface roughness values recited in claim 37. The reason limiting the surface roughness of the instrument is important is because, by doing so, the strength of the instrument is increased. This is a consideration not identified by the examiner as present in the prior art and it is a consideration that is particularly important when the instrument is of a small diameter as is the case for example with dental instruments.

As far as claims 28 and 29 are concerned, the examiner interprets the limitation of "geometrically created form transitions" as requiring all the edges of the instrument to be rounded and asserts that to do so would be obvious for the purpose of insuring a smooth finish on the work piece. However, the examiner does not explain how rounded cutting edges would insure a smooth finish such that one skilled in the art would be prompted to provide such rounded edges. In any event, as discussed above, the expression applies to the edges of the instrument other than the cutting edges and, thus, the limitation would not be obvious.

With respect to claims 32 and 33, the examiner asserts that to provide a conical instrument with the tapers recited in those claims would be a "matter of routine". This assertion by the examiner has no basis to support it. The rather slight angles recited in claims 32 and 33 are used to preserve the strength of the core reinforcement of the instruments. On the other hand the cone-shaped instrument of the Japanese Patent in FIG. "e" suggests the use of a severe taper that would not necessarily provide the necessary core reinforcement strength.

Claims 37-41 have been rejected under 35 U.S.C. 103 (a) as unpatentable over the Japanese Patent in view of Kumar (US 2002/0028422). The examiner is of the view that it would have been obvious to one skilled in the art at the time applicant's invention was made to adopt the teaching of Kumar concerning the use of depth marks in the dental instruments of the Japanese Patent. Because claims 37-41 are either directly or

indirectly dependent on claim 26, combining the teachings of the Japanese Patent and the Kumar publication does not render claims 37-41 unpatentable at least for the reason that claim 26 is distinguishable over the Japanese Patent as discussed above. Additionally, claims 38 and 39 include a limitation concerning the surface roughness of the depth marks that is not taught by either the Japanese Patent or the Kumar publication.

Information Disclosure Statement

The examiner has indicated that the foreign references cited on the Form PTO-1449 submitted with the Information Disclosure Statement of March 16, 2005 submitted by applicant have not been considered because copies of the foreign references did not accompany the Information Disclosure Statement. As indicated in the Information Disclosure Statement, copies of the foreign references were not submitted because they were to have been submitted by the International Bureau. Based on the examiner's representation that the references were not in the file, it appears that the references were not sent by the International Bureau or the references were misplaced at some point between the International Bureau and the United States Patent Office. Accordingly, applicant is resubmitting another copy of the Form PTO-1449 which was filed with the Information Disclosure Statement of March 16, 2005 along with copies of the foreign patents listed therein. The examiner is respectfully requested to review and consider these foreign references in connection with the further consideration of the claims in the present application. Applicant requests that the examiner return an initialed copy of the enclosed Form PTO-1449 with the next communication.

It is respectfully submitted that the claims pending in the present application are patentable for the reasons set forth above, and the examiner is respectfully requested to allow the claims and issue a notice of allowance.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. 37546.

Respectfully submitted,

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